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EXAMINER

KOTTER, KIP T

ART UNIT

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3617

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because of the following informalities:
  - Text should not accompany the newly added reference characters in Figs. 1(a) and
3.
  - The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the cavity being “substantially parallelepipedal in cross section” as set forth in claims 4 and 17 must be shown or the feature(s) canceled from the claim(s). **No new matter should be entered.**
  - The term “Aerial” in the Figures should be changed to -- areal -- to correct a typographical error.

### *Specification*

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:
  - There is no description of the areal size of a total cross section of the tubular rim part being less than  $339.5 \text{ mm}^2$ , the first geometrical moment of inertia of the tubular rim part being more than  $15,117.2 \text{ mm}^4$ , and the second geometrical moment of inertia of the tubular rim part being more than  $43,636.4 \text{ mm}^4$  as set forth in claims 4 and 17.

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- There is no description of the areal size of the total cross section of the tubular rim part being less than  $298.2 \text{ mm}^2$  as set forth in claim 12.
- There is no description of the areal size of the total cross section of the tubular rim part being less than  $310.5 \text{ mm}^2$  as set forth in claim 15.
- There is no description of the thicknesses of the ornamental wall being smaller than that of each of the bead seat, the hump and the slope wall as set forth in claim 16.

### ***Claim Objections***

3. Claims 4, 12, 15 and 17 are objected to because of the following informalities: The term “parallelepipedal” in claims 4 and 17 should be changed to -- parallelepipedal -- and the term “aerial” in claims 4, 12, 15 and 17 should be changed to -- areal -- to correct typographical errors. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 4-7, 9-13 and 15-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 4 and 17, there is no support in the original disclosure for

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the cavity being "substantially parallelepipedal in cross section". Such a configuration is not described in the specification and is not shown in the Figures.

**This is a New Matter Rejection.**

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-7, 9-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baumgartner (U.S. Patent No. 6,783,190 B1; previously cited).

Baumgartner, in the embodiment of Fig. 5, discloses a light alloy wheel comprising an outer rim having a tubular rim part, the tubular rim part comprising: a bead seat (unlabeled portion of **31**), a hump (unlabeled portion of **31**), a slope wall (unlabeled portion of **31**) and an ornamental wall (unlabeled portion of **31**), the ornamental wall being arranged on a side opposite to tire-mounting side of the outer rim as shown in Fig. 5 and bridging from a first juncture between a first extension from a tire-mounting-side contour of the bead seat and an exterior contour of the rim to a second juncture between a second extension from a tire-mounting-side contour of the slope wall and the exterior contour of the rim as shown in Fig. 5; wherein a cavity **41** is defined by the bead seat, the hump, the slope wall and the ornamental wall; an imaginary solid rim part is assumed as defined by the first and second junctures and consists of the bead

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seat, the hump and the slope wall, wherein the thickness of a portion of the hollow spokes, ornamental wall, the bead seat, the hump or the slope wall is configured with a modified thickness with respect to a thickness of a remainder of the ornamental wall, the bead seat, the hump of the slope wall and the portion is comprised of a flat wall and/or a curved wall so as to increase the first and second geometrical moments of inertia as shown in Fig. 5 and described in lines 52-67 of column 1, lines 18-26 of column 2, and lines 21-33 of column 3; wherein the hollow spokes are jointed at joints to the tubular rim part, wherein the tubular rim part has an opening at each of the joints between the hollow spokes and the tubular rim part, so that cavities of the hollow spokes communicate with the cavity in the tubular rim part as shown in Fig. 5 and described in lines 5-9 of column 3 and lines 18-26 of column 3; wherein the ornamental wall is at least partly, convex outwardly as shown in Fig. 5; wherein an inner rim has a tubular rim part that is constructed as in the tubular rim part on the outer rim as shown in Fig. 5; and wherein the light alloy wheel can be formed by casting technique (lines 37-42 of column 2) and is capable of being configured for use on a four-wheel automobile with a dimension in a wheel-radial direction between the bead seat and a rim well of 17.0 mm or more and an inclination of the slope wall of 20 degrees or more.

Although Baumgartner discloses a wheel that includes a tubular rim part that is formed and shaped to reduce weight and increase bending strength and rigidity as described in lines 52-67 of column 1 and lines 18-27 of column 2, Baumgartner fails to expressly disclose the shape and the thicknesses of the bead seat, the hump, the slope wall and the ornamental wall of the tubular rim part being in a range of 2.3 mm to 4 mm so that a ratio of cross-sectional area of the tubular rim part to that of the imaginary solid rim part is no more than 100% and a first

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geometrical moment of inertia of the tubular rim part, about an axis that is parallel to the wheel axis and extends through centroid of a cross section of the tubular rim part, is no less than geometrical moment of inertia of the imaginary solid rim part, about an axis that is parallel to the axis of the wheel and extends through centroid of a cross section the solid rim part; and a second geometrical moment of inertia of the tubular rim part, about an axis that is vertical to the axis of the wheel and extends through centroid of a cross section of the tubular rim part, is no less than the geometrical moment of inertia of the imaginary solid rim part, about an axis that is vertical to the axis of the wheel and extends through centroid of a cross section of the solid rim part.

It would have been obvious to one having ordinary skill in the art, as a mechanical expedient, to have modified the shaping and wall thicknesses of the tubular rim part of Baumgartner so that its cross-sectional area is less than the cross-sectional area of the imaginary solid rim part and less than  $298.2 \text{ mm}^2$  based upon the intended use of the wheel, loading, materials used, and manufacturing process used, to achieve a desired strength-to-weight ratio and to provide predictable results for decreasing the weight of the wheel. Moreover, to have formed the cavity with a substantially parallelepipedal shape in cross section would have been obvious to one having ordinary skill in the art, as a design expedient, to achieve a desired strength-to-weight ratio and a desired appearance of the rim, such as a rim with larger openings in the radially outermost side of the disc and/or openings that appear larger.

Further, it would have been obvious to one having ordinary skill in the art to have modified the shaping and wall thicknesses of the bead seat, the hump, the slope wall and the ornamental wall of the tubular rim part of Baumgartner to be in a range of 2.3 mm to 4 mm wherein the thicknesses of the ornamental wall are smaller than that of each of the bead seat, the

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hump and the slope wall, the first geometrical moment of inertia of the tubular rim part to be more than  $15,117.2 \text{ mm}^4$ , and the second geometrical moment of inertia of the tubular rim part to be more than  $43,636.6 \text{ mm}^4$  as a matter of routine optimization on the part of a person of ordinary skill in the art so that its two-dimensional geometrical moment of inertia are greater than the two-dimensional geometrical moment of inertia of the imaginary solid rim part to provide predictable results for increasing the strength and rigidity of the wheel.

Regarding claims 10 and 13, Baumgartner fails to expressly disclose at around joints augmentation and/or trim-wise rounding is made on inner faces of the hollow spokes and/or the tubular rim part.

Nonetheless, to have modified Baumgartner by rounding the inner faces of the hollow spokes and/or tubular rim part at around the joints augmentation would have been obvious to one having ordinary skill in the art to provide predictable results for preventing stress concentrations.

### ***Response to Arguments***

8. Applicant's arguments filed April 8, 2010 have been fully considered but they are not persuasive.

In response to Applicant's assertion that the cavity being "parallelepipedal in cross section" is "supported by Applicant's constructions", the Examiner respectfully disagrees. The specification does not describe the cavity being "parallelepipedal in cross section", nor do the figures show a cavity having a shape that is "parallelepipedal in cross section".

In response to Applicant's arguments that "Baumgartner fails to teach or suggest the constructions as claimed by Applicant with respect to Applicant's recited aerial cross sections



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and first and second geometrical moments of inertia”, note that the claims are rejected under 35 U.S.C. 103. Further, note that *KSR* forecloses the argument that a **specific** teaching, suggestion, or motivation is required to support a finding of obviousness. See *Ex parte Smith*, --USPQ2d--, slip op. at 20, (Bd. Pat. App. & Interf. June 25, 2007)(citing *KSR*, 82 USPQ2d at 1396).

Nonetheless, as noted above, Baumgartner expressly teaches that the shape and configuration of the tubular rim part can be optimized to reduce weight and increase bending strength and rigidity as described in lines 52-67 of column 1 and lines 18-27 of column 2.

In response to Applicant’s argument that "the profile attachment 31 in Baumgartner fails to teach or suggest the “claimed aspects” of Applicant's “relative wall thickness”, note that claim 4 does not appear to recite relative wall thicknesses.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIP T KOTTER whose telephone number is (571)272-7953. The examiner can normally be reached on Mon. - Fri., 9:00 - 4:00pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571)272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. Joseph Morano/  
Supervisory Patent Examiner, Art Unit 3617

/KIP T KOTTER/  
Examiner, Art Unit 3617